MAKING MODERN LIVING POSSIBLE

ComLynx Weblogger

User Manual

DANFOSS SOLAR INVERTERS

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1. About This Manual

This manual provides detailed product information and instructions on how to use ComLynx Weblogger.

Important information in the manual is identified by means of various symbols shown below:

Attention!
The "attention" symbol indicates an item whose disregard may result in damage to equipment and/or harm to persons. Information thus marked must be observed on all accounts.

Information!
The "Information" symbol indicates supplementary information, the observance of which by the user leads to improved performance. Additional information for the user.

This document incorporates the latest version at the time of printing. It is subject to changes required by new functions and improvements. The names of products and companies mentioned in this document may be protected trademarks.

2. Safety Instructions

Readers of this manual are assumed to be familiar with regulations and guidelines concerning electrical installations and their connection to the mains power network. Particular attention must be paid to general safety regulations for working with electrical installations.

Please observe the safety instructions below to prevent injury to persons and damage to connected equipment.

Contact with electrically conductive parts can be life threatening even after their disconnection from the mains network. **Installation should only be performed in the de-energised state.**

Equipment must be installed only in protected/dry environments.
Do not use metallic/pointed/sharp instruments to access the housing's interior.
Prevent cables and terminals from being exposed.
The power connection must be equipped with a fuse and earthing.
The power plug must be accessible at all times.
Qualified personnel only must perform maintenance.
Equipment must only be operated at the rated supply voltages (12-24 VDC, correct polarity). A suitable power supply unit is included in the scope of delivery.

Note: ✍
Observe the manufacturer's instructions regarding the handling of power supply units (especially switching units).
Observe the manufacturer's instructions regarding the handling of inverters.

Mechanical modifications to equipment - including installation of bores - will result in damage and invalidate all guarantee claims.

3. ComLynx Weblogger Description

3.1. System Overview

A system for acquiring, processing, evaluating and distributing system-related information, ComLynx Weblogger is a concept based on many years of experience. It is designed especially for monitoring processes at regenerative power plants. The system incorporates the following functions:

- Detailed query and storage as well as continuous evaluation of inverter data
- Monitoring of yield/events and power
- Issue of e-mail alarms on occurrence of incidents; issue of error messages (configurable)
- Preparation of reports and diagrams; automatic distribution via e-mail, HTTP (Internet)
- Display of current plant status (instantaneous values)
- Download of measurement data for further processing
- Dynamic language switchover for users

ComLynx Weblogger is operated fully via a web browser, like the Internet Explorer® or Firefox®. One decisive advantage of the ComLynx Weblogger System is that the system's intelligence is within the ComLynx Weblogger and therefore directly at the plant. This is what makes independent on-site monitoring possible.

The diagram below provides an overview of system components.

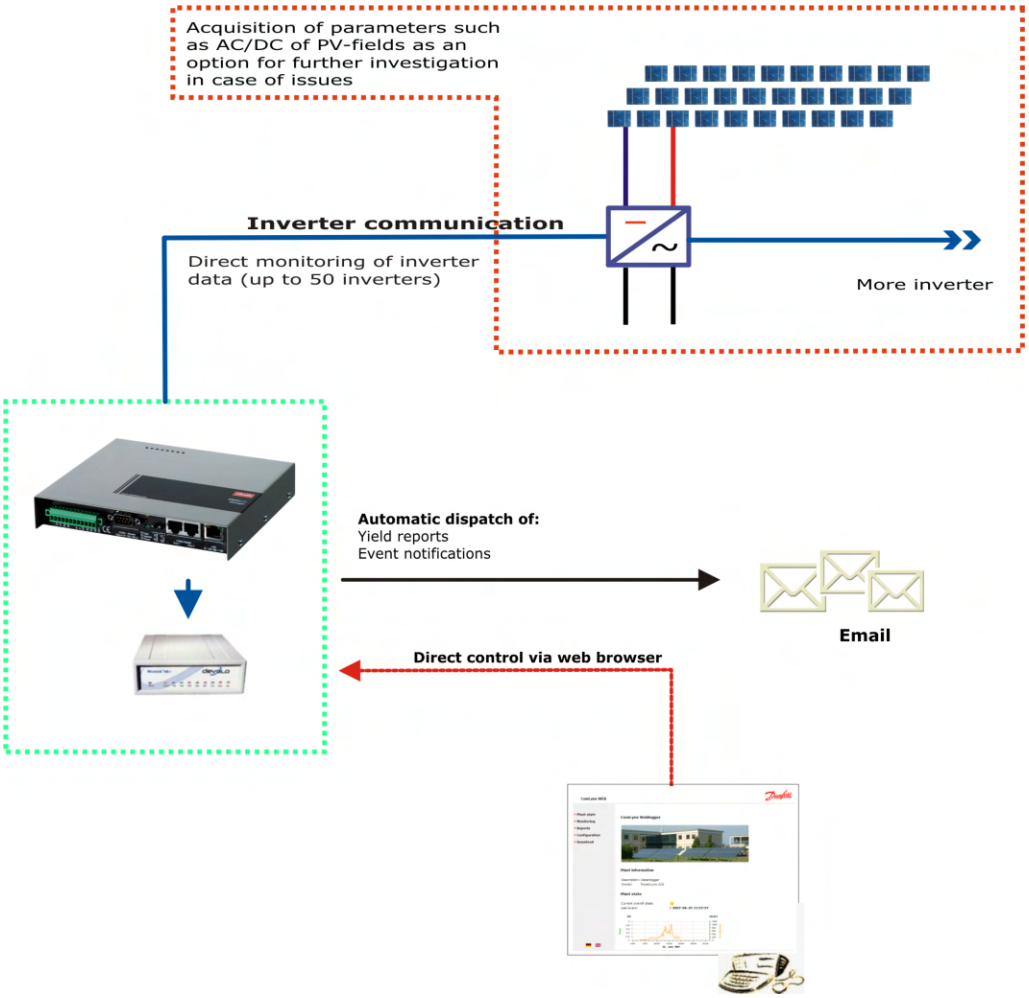

Acquisition of parameters such as AC/DC of PV-fields as an option for further investigation in case of issues
Inverter communication
Direct monitoring of inverter data (up to 50 inverters)
More inverter
Automatic dispatch of:
Yield reports
Event notifications
Email
Direct control via web browser

Illustration 3.1: System Overview

3.2. Scope of Delivery

Scope of delivery for the ComLynx Weblogger includes:

- ComLynx Weblogger
- Terminator plug for RS485 inverter bus
- 256MB Compact Flash® memory card (installed in the device) with pre-configured ComLynx Weblogger software
- Plug-in power supply unit: Cable length: 1.5 m
  - Input: 100 - 240VAC
  - Output: 12 V, 2A, 75 x 43 x 34 mm (pre-mounted on the terminal strip)
- Crosslink Ethernet PC connection cable (2 m)
- Assembly kit: Assembly adapter, hat-rail clamp, screw set (3 screws and dowels) for fastening
- CD with manuals in English, German, French, Spanish and Italian
- Quick Guide in English, German, French, Spanish and Italian

3.3. Recommended Accessories

Modem / network:

- Analogue: DEVELO Microlink 56k i
- ISDN: DEVELO Microlink ISDN i
- GSM: Siemens MC35i Terminal
- WLAN: D-Link, Netgear

ComLynx Sensor Interface
The connection of Sensors to the ComLynx Weblogger can only be achieved via the ComLynx Sensor Interface. The sensor module must be ordered additionally from the manufacturer.

3.4. Connections

3.4.1. Connections

ComLynx Weblogger is equipped with the connections described below.

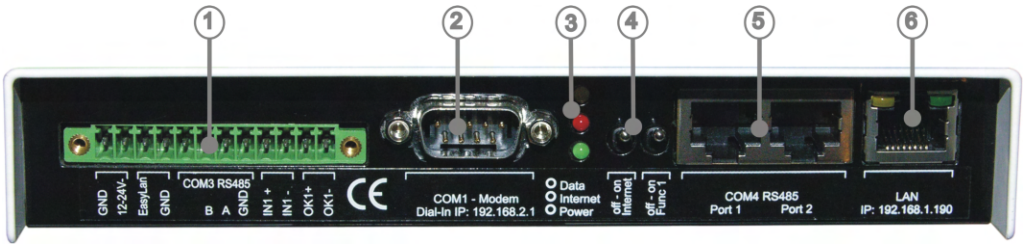


Illustration 3.2: ComLynx Weblogger connections

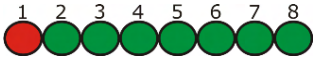
1) Power supply terminal strip, EasyLan field bus, RS485 data interface, 1 relay output for event message contact and 1 floating input
2) Serial interface for modem
3) 3 LEDs for indicating operational statuses (red, yellow, green)
4) Dial-out and function switches (function switch not yet assigned)
5) RS485 data interface - RJ45 double socket for inverter connection
6) LAN Ethernet interface

3.4.2. Terminal Strip (8-pole)

PIN	Function	Description
GND	Voltage supply	
12-24 V		
EasyLan	EasyLan bus	Field bus, e.g. for connecting a sensor module
GND		
-	(COM3) RS485 interface	Optional interface, e.g. for connecting a large display
B		
A		
GND		
IN1+	Floating input	For connecting an error detector (switching voltage: 12 – 24 VDC).
IN1-		
OK1+	Relay output	For outputting error messages (max. switching voltage: 48 VDC)
OK1-		

3.5. Signals and Operational Indicators on the Device

3.5.1. LED Display on Top of the Device



1 = Inverter event
2 = Stand-by, system operational
3 = Inverter communication
4 to 8 = Current power sum

The power sum of the LED display will be calculated on basis of the max. input value of the inverters (=100% per numbers of LED).
Since the so far indicated unit power is very low, increased display values may occur initially. In order to prevent this, the max. input power can be entered manually for each inverter (see Chapter 8.5.10).

In order to check the functioning of the LED display, all LEDs will light briefly on start-up.

3.5.2. LED on the Terminal Strip

Data	Yellow on:	Modem communication active
Internet	Red on:	Modem can establish link independently (internet dial-in)
Power	Green on.	Power supply OK

The "Dial Out" switch is used to enable / disable independent dial-out by ComLynx Weblogger via modem → Dial-Out LED on. Active dial-out results in telecommunication charges for the operator.

3.5.3. Audio Signals

ComLynx Weblogger emits an audio signal to acknowledge that power is on. Apart from that an audio signal is only used in case of an error, as on a PC.

3.6. Compact Flash® Memory Card

A 256 MB Compact Flash® memory card is used as a storage medium by ComLynx Weblogger. Approximately 50 MB of memory are needed by the system. ComLynx Weblogger does not function without an installed Compact Flash® memory card.

Attention!
The internally installed Compact Flash® memory card should only be changed by an authorised dealer.

4. Description of ComLynx Sensor Interface

4.1. System Overview

Weather, climate and environmental data also serve to qualitatively assess a solar plant's features. To measure variables such as directional irradiance, module temperature and input electrical energy, optional sensors can be installed on the PV system and scanned / tested by an external analogue-digital converter called ComLynx Sensor Interface.
This sensor module is able to register 1x 0…150mV, 2x PT1000, 1x pulse and 1x 0-20mA, thus permitting measurements of environment data, module temperature, irradiance and power through transformer.

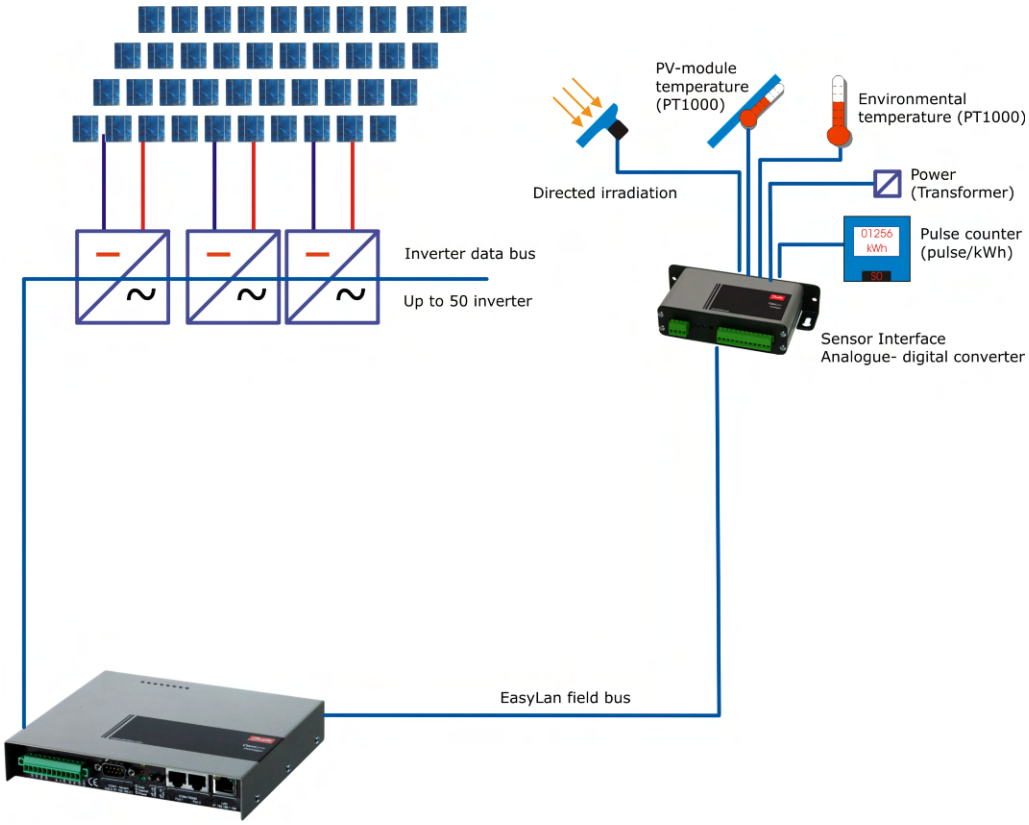


Illustration 4.1: System with a Connected ComLynx Sensor Interface

4.2. Sensors

The following sensors may be installed via the ComLynx Sensor Interface:
Irradiation sensor

- 0-150mV
- mono-/ polycrystalline or amorphous
- With or without temperature measurement

Module temperature sensor

- PT1000

Environment temperature sensor

- PT1000

Impulse generator

- Digital Input
- Passive 12V…24V

Transformer for power

- 0-20 mA output proportionally to the power

> The correct function of additional sensors cannot be guaranteed.

4.3. Data Bus and Power Supply

To connect the ComLynx Sensor Interface, the data bus and power supply must be connected to ComLynx Weblogger.

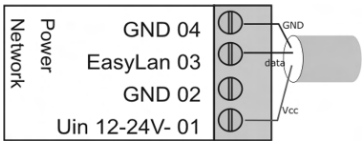


Illustration 4.2: ComLynx Sensor Interface Connection

The 'GND 04', 'EasyLan 03' data bus and 'Uin 12-24V- 01' power supply must be routed to the corresponding terminals (PIN) on the strip (see also to Chapter 3.4.1).
For the connection to a separate plug-in power supply unit, see the Quick Guide of the ComLynx Sensor Interface.

> The irradiation sensor cable should generally NOT be extended, as this may lead to gross errors in measurement data.

> Very long cables to the temperature sensor distort measurement values. A 10-metre long copper cable with a cross-section of 0.25 mm^2 generates a measurement error of approximately 0.5 °C on a PT-1000 temperature sensor.

> If no voltage source is connected (e.g. for irradiance), the factory wiring needs to be modified (see Chapter 8.5.11). Drift voltages at the open measurement input would be interpreted and recorded as operational sensor values by the data logger.

5. First Installation

This section can be skipped if the ComLynx Weblogger *is to be operated only via its modem (Analogue/ISDN except GSM) interface (remote data transmission).*

If the ComLynx Weblogger is to be integrated into a local area network (LAN), it first needs to be checked with a **network administrator** if the delivery status IP address is already occupied in the same network. Should this be the case a new IP address has to be requested from the network administrator, and then has to be adapted via direct connection in the device and PC.
The delivery status IP address of the device is set to LAN IP address **192.168.1.190** (network mask 255.255.255.0; see Chapter 3.4, point 6). With this IP address entered into a web browser, the ComLynx Weblogger homepage opens.

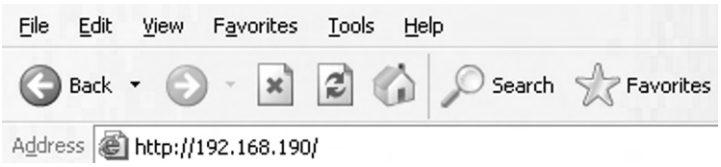


Illustration 5.1: IP Entry Internet Explorers®

In case the device has to be configured to another IP address, the network settings of the PC have to be aligned to those of the ComLynx Weblogger in order to apply changes accordingly:

A note should be made of the previous settings of the PC in order to restore them!

PC Settings:

- *Start → Control panel → Network connections* → right click on the *LAN (Local Area Connection) connection* and choose *Properties* → right click → properties)

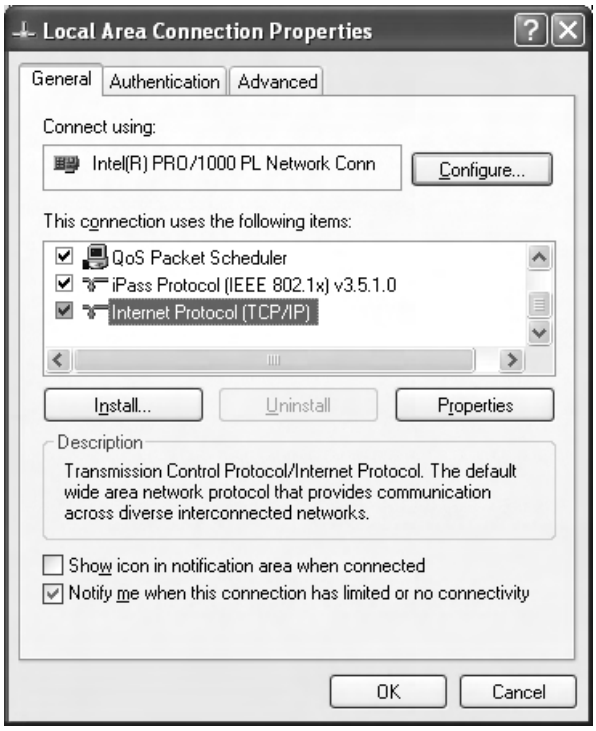


Illustration 5.2: LAN Connection Properties

- Select *Internet Protocol TCP/IP* → Press *Properties* button → IP address: **192.168.1.191** (or the IP address allocated by the administrator)
  Sub-network mask: **255.255.255.0**

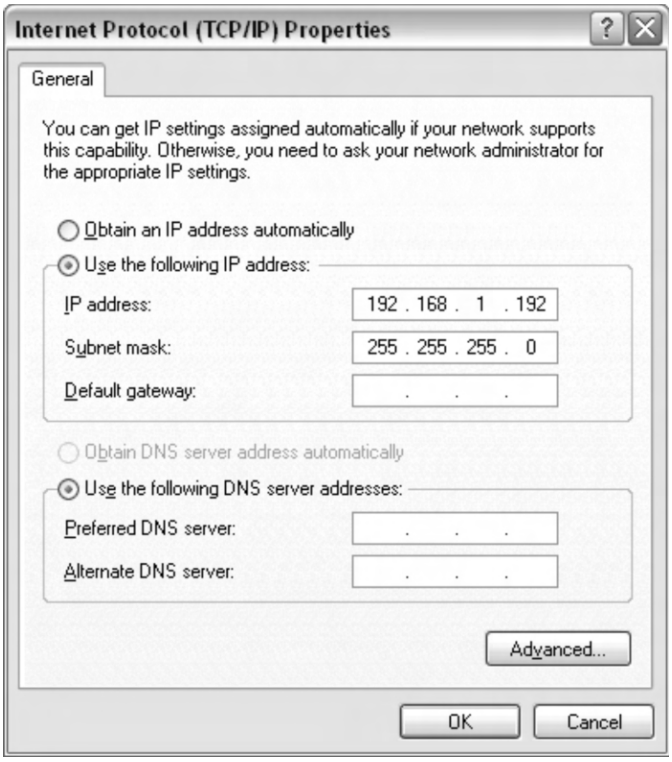
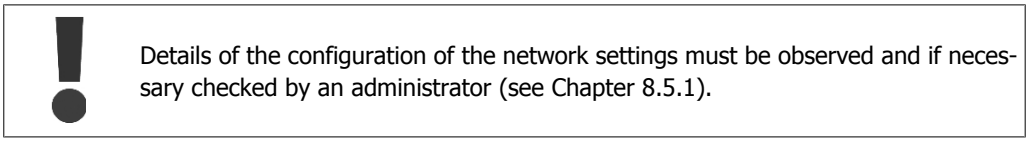

Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
192 . 168 . 1 . 192
Subnet mask:
255 . 255 . 255 . 0
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

Illustration 5.3: TCP / IP Connection Properties

- Confirm your settings with *"OK"*.

Under network configuration (see Chapter 8.5.1) enter the new IP address. User and access rights (see Chapter 8.2) must be observed here.

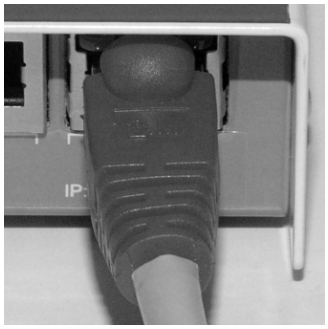


Details of the configuration of the network settings must be observed and if necessary checked by an administrator (see Chapter 8.5.1).

6. Connection and Start-up

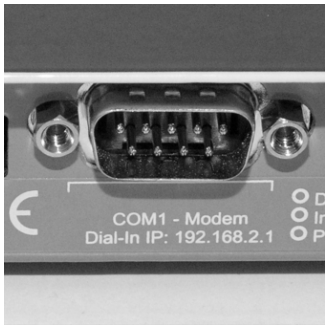
6.1. Connection via LAN Interface or Modem

ComLynx Weblogger is operated exclusively from a web browser (Internet Explorer® from Version 6 or Firefox®) with access via a LAN interface or modem dial-up.



LAN Ethernet connection via patch cable or direct connection via cross-link cable (scope of delivery).

Illustration 6.1: Cross-link Cable

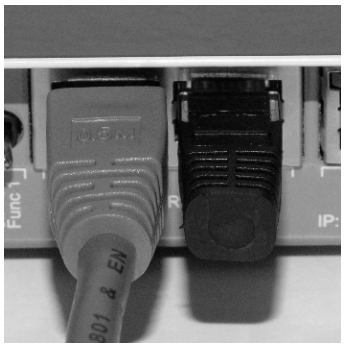


Modem connection (RS232, SUB-D9)

Illustration 6.2: Modem Connection

6.2. Connection to the Inverter Network

Connection to the inverters is established in accordance with the inverter data bus types.

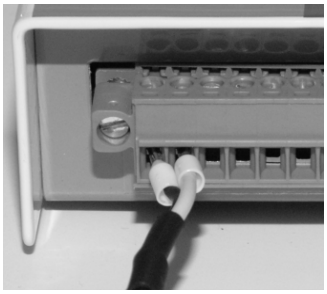


Connection to an inverter via a standard commercial RJ45 network cable + RJ45 terminator (is included in the scope of delivery)

Illustration 6.3: Network Cable + RJ 45 Terminator

Attention!
RJ45 double sockets for inverter communication should not be mistaken for RJ45 LAN sockets (identified by 2 LEDs).

6.3. Electrical Mains Connection



Power supply via a plug-in power supply unit

Illustration 6.4: Plug-in Power Supply Unit

The power supply is to be connected by means of the plug-in power supply unit (12 V-) included in the scope of delivery. ComLynx Weblogger typically has a power consumption of 5-7 W.

Attention!
Connection to the mains supply must only be established after installation of the hardware and all other cables.

6.4. Switch-on

ComLynx Weblogger is ready for operation approximately **60 seconds** after connection to the mains power supply. To ensure that all LEDs are functioning correctly, all LEDs will light briefly. The unit is now ready.

6.5. ComLynx Weblogger Connections

Before connecting a network cable an initial installation is necessary. Here the IP address needs to be checked and eventually adjusted in the device, which is a prerequisite for the communications between ComLynx Weblogger and PC.
For remote access via modem no preliminary IP settings are necessary at the PC.
Generally for the first use of the ComLynx Weblogger it is necessary to "identify" inverters. This can be done via the Web interface under *"Configuration/ Inverter"* (see Chapter 8.5.11).

6.5.1. Via Direct Connection

A connection must be established to a LAN interface of a local PC via a crosslink-cable see Chapter 6.
Enter the IP address into a web browser to open the ComLynx Weblogger start page. This is the IP address of the device 192.168.1.190 (in delivery status) or the IP address allocated by an administrator.

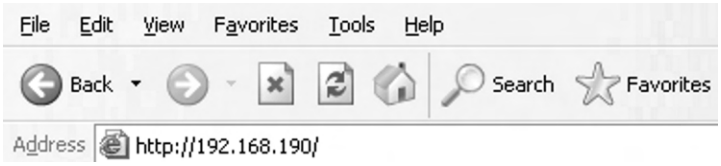


Illustration 6.5: IP (in Delivery Status) Entry into Web Browser

For faster access the IP address can be saved in Favourites of your chosen web browser.

6.5.2. Network Connection

ComLynx Weblogger must be connected to the network via a **patch cable**, and after connection of the network cable can be invoked by entering the IP address in a Web browser, as with direct connection.
The address used is the IP address of the device 192.168.1.190 (in delivery status) or the address configured in the initial installation (see Chapter 5).

6.5.3. Via Remote Access (Analog/ISDN/GSM etc.)

If ComLynx Weblogger is to be used with a modem a connection between the PC and ComLynx Weblogger via the telephone network must be established.

- Start → Control panel → Network connections → Create new connection
- Connect to the Internet

New Connection Wizard
Network Connection Type
What do you want to do?
Connect to the Internet
Connect to the Internet so you can browse the Web and read email.
Connect to the network at my workplace
Connect to a business network (using dial-up or VPN) so you can work from home, a field office, or another location.
Set up a home or small office network
Connect to an existing home or small office network or set up a new one.
Set up an advanced connection
Connect directly to another computer using your serial, parallel, or infrared port, or set up this computer so that other computers can connect to it.
< Back
Next >
Cancel

Illustration 6.6: Connection to the Internet

- Setup up my connection manually

New Connection Wizard
Getting Ready
The wizard is preparing to set up your Internet connection.
How do you want to connect to the Internet?
Choose from a list of Internet service providers (ISPs)
Set up my connection manually
For a dial-up connection, you will need your account name, password, and a phone number for your ISP. For a broadband account, you won't need a phone number.
Use the CD I got from an ISP
< Back
Next >
Cancel

Illustration 6.7: Manual Connection Setup

- Connect using a dial-up modem

New Connection Wizard
Internet Connection
How do you want to connect to the Internet?
Connect using a dial-up modem
This type of connection uses a modem and a regular or ISDN phone line.
Connect using a broadband connection that requires a user name and password
This is a high-speed connection using either a DSL or cable modem. Your ISP may refer to this type of connection as PPPoE.
Connect using a broadband connection that is always on
This is a high-speed connection using either a cable modem, DSL or LAN connection. It is always active, and doesn't require you to sign in.
< Back
Next >
Cancel

Illustration 6.8: Connection Using a Dial-up Modem

- Select a modem

New Connection Wizard
Select a Device
This is the device that will be used to make the connection.
You have more than one dial-up device on your computer.
Select the devices to use in this connection:
Modem - Standard 33600 bps Modem (COM2)
Modem - Standard 56000 bps Modem (COM1)
< Back
Next >
Cancel

Illustration 6.9: Modem Selection

If only one modem has been installed, no list of modem choices will appear.

- Enter a name

New Connection Wizard
Connection Name
What is the name of the service that provides your Internet connection?
Type the name of your ISP in the following box.
ISP Name
The name you type here will be the name of the connection you are creating.
< Back
Next >
Cancel

Illustration 6.10: Entry of a Name (Internet Server)

- Enter a phone number

New Connection Wizard
Phone Number to Dial
What is your ISP's phone number?
Type the phone number below.
Phone number:
You might need to include a "1" or the area code, or both. If you are not sure you need the extra numbers, dial the phone number on your telephone. If you hear a modem sound, the number dialed is correct.
< Back
Next >
Cancel

Illustration 6.11: Entry of a Phone Number (Internet server)

- Next → User name and password are not necessary
- Finish creation of the connection.
- The number can now be dialed.

Illustration 6.12: Connection Establishment

If an ISDN modem is used in conjunction with a "normal" modem on ComLynx Weblogger's side, appropriate drivers need to be installed for modem emulation.
In the case of AVM Fritz® cards (including USB versions), this option must be post-installed from the AVM software CD (refer to "AVM ISDN analogue modem V32 BIS).

If an ISDN modem is used in conjunction with another ISDN modem on the ComLynx Weblogger's side, both sides must be linked via an X.75 operating mode.
However, in this case communication via "normal" modems is not possible.

When the network connection is configured and set, the ComLynx Weblogger start page can be opened via a modem with the IP **http:\\192.168.2.1.**

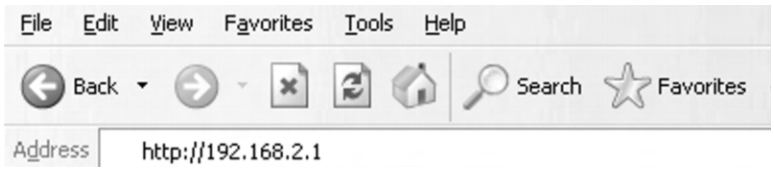


Illustration 6.13: IP Entry Internet Explorers®

7. Mounting

7.1. Mounting

The ComLynx Weblogger is intended for mounting indoors or in switch cabinets. It may be mounted horizontally or in a suspended state (with connections facing downwards), on mounting rails or on a wall with the brackets provided (see below).

Attention!
Like all other electronic devices, ComLynx Weblogger needs to be protected against moisture, especially condensation.

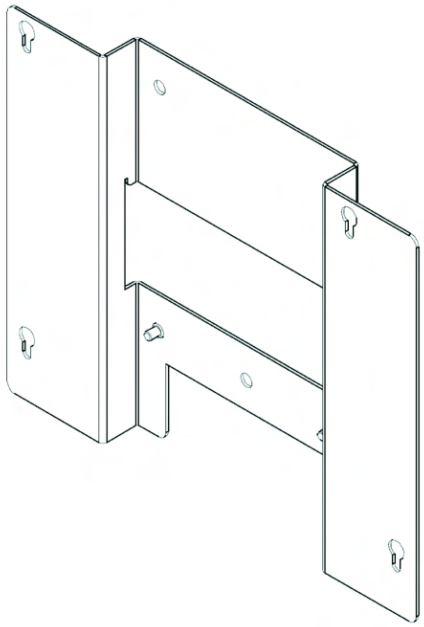


Illustration 7.1: Wall Bracket

The ComLynx Weblogger is hung on the mounting bracket by locking the screws on the rear of the device into the sockets on the bracket. When attaching the device care should be taken that the cable can be easily attached from below, avoiding strain on the cable!

Attention!
The unit should be firmly attached to a wall using raw plugs to avoid risk of falling and being damaged.
To avoid damage to the device the wall-bracket should be fixed using raw-plugs. Mounting outdoors is only permissible inside suitable switch cabinets (protection level IP65).
Connection or removal of any cables/wires should only be done when the device is switched off.

8. Working with ComLynx Weblogger

8.1. Working with ComLynx Weblogger

The ComLynx Weblogger can be accessed via a Web browser e.g. Firefox ® or Internet Explorer® (Version 6 or above).

8.2. User Rights, Access Rights

ComLynx Weblogger offers two access levels; settings are performed exclusively at the administrator level.

Guest access
Guests are able to read, but not write, all information and data.

Administrator access
Additionally the Admin (administrator) is able to edit settings. For this purpose those with Admin rights need to be authenticated with a username and password.

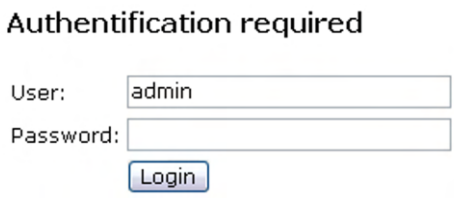


Illustration 8.1: Administrator Login

By default, the user and password are both set to **"admin"** prior to delivery.

Attention!
To avoid unauthorised access by a third party, the password must be changed immediately after the first login (see Chapter 8.5.6).

Clicking on Login establishes the connection.

8.3. Web Interface

ComLynx Weblogger's main page provides an overview of the selected plant's operational status.

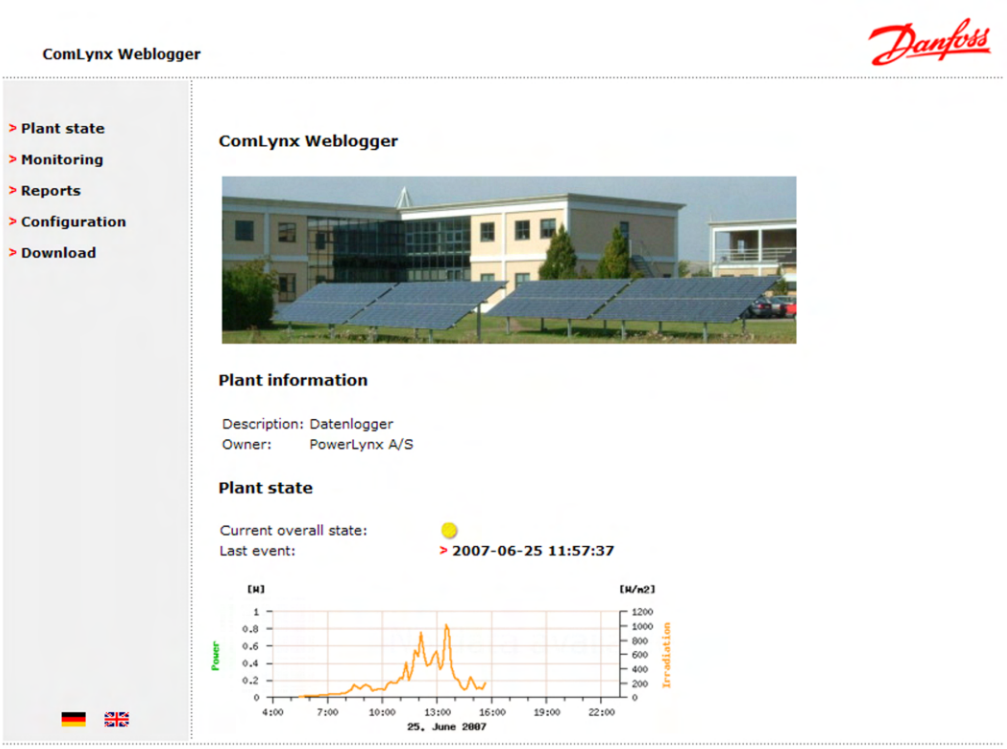


Illustration 8.2: Web interface

Plant picture
A picture can be loaded optional see Chapter 8.5.8.

Plant information
This item provides prior configured information such as a short description and operator details. A individually editing is possible (see Chapter 8.5.8).

Plant status
This item indicates the time stamp (date/time) of the last event; clicking on it directly invokes the monitoring page. Also shown is a status light indicating the PV plant's current state:

Green:	Plant operations OK
Yellow:	One inverter is faulty (no communication, no network feed)
Red:	At least 30% of all inverters are faulty (no communication, no network feed)

Alarm confirmation
The alarm confirmation is to deactivate an alarm contact which is only indicated with an active relay. Alarm details can be found in Monitoring Chapter 8.6 (activate/deactivate alarm).

Current plant power
A line diagram indicates the PV plant's current daily power. The power of individual inverters are displayed along a time axis. Evaluation details are provided in 8.7.
If an irradiation sensor has been connected to ComLynx Weblogger, the irradiance is also indicated.

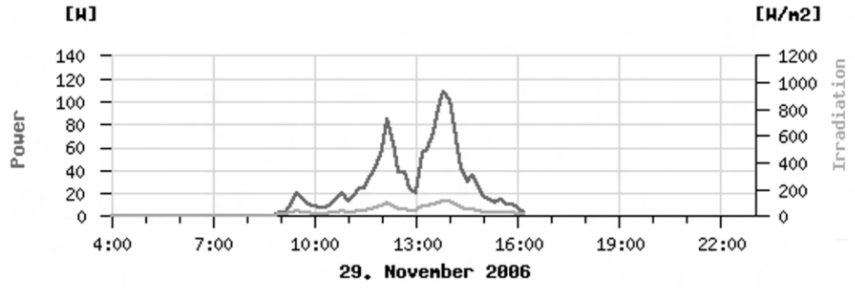


Illustration 8.3: Plant Power with Radiance Sensor

Note: ✍
Pictures reaching a size of 200 x 200 pixels or more can be printed out by clicking on the corresponding toolbar icon (if active); refer to the description of the toolbar in the user manual of Internet Explorer®).

The left part of the web interface shows the main menu from where all submenus can be invoked, including:

Plant status:	Plant status (inverter power-/ groups, total power of the PV plant, current sensor values etc.)
Monitoring:	Events (system, inverter, configuration and general system failures etc.)
Reporting:	Graphic reports (power, yield etc.) with optional messaging
Configuration:	System and component configuration (default settings apply during initial commissioning)
Download:	Data transfer to PC (TXT, CSV, XML)

Details on individual functions are provided in the subsequent chapters.

8.3.1. Sub-menu Editing Functions

Settings and changes are performed in the sub-menu of the selected function. Click on *'Edit'* to enter the required settings.
If you have not yet logged in as an authorised user, you have to register as administrator. Setting changes are performed exclusively at the administrator level (see Chapter 8.2).
Click on *'Cancel'* to discard new data and restore the previous settings.
Click on *'Save'* to save new data and overwrite the previous settings. Changes to the system and component configuration are logged as events by the monitoring function (see Chapter 8.6).
In both cases, the editing window then closes automatically; click on *'Edit'* once again to perform further modifications.

! For the use of some functions Java Script needs to be enabled. For details please consult your browser's manual.

8.4. Language Options

The Web interface of the ComLynx Weblogger offers a choice of languages, which can be individually configured for each session.

The language of choice for the user interface is chosen by clicking on the relevant national flag, and will revert to standard language setting at the end if each session (or a period of inaction on the user-interface of approximately 10 min.).
Details of the configuration of the Standard Language Options can be found in Language Options Chapter 8.5.13.

8.5. Configuration

Clicking on *'Configuration'* provides an overview of the ComLynx Weblogger current system parameters and other information such as free and used *'harddisk space'* (Compact Flash® card) as well as *main memory*.
From here you can perform settings in further sub-menus for network, Internet access, e-mail etc.

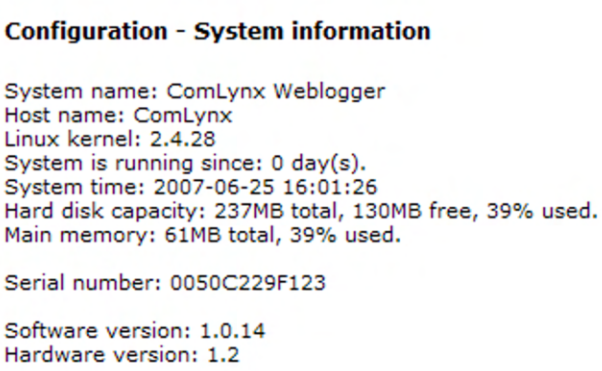

Configuration - System information
System name: ComLynx Weblogger
Host name: ComLynx
Linux kernel: 2.4.28
System is running since: 0 day(s).
System time: 2007-06-25 16:01:26
Hard disk capacity: 237MB total, 130MB free, 39% used.
Main memory: 61MB total, 39% used.
Serial number: 0050C229F123
Software version: 1.0.14
Hardware version: 1.2

Illustration 8.4: Overview of System Information

Settings such as host name, system name (see Chapter 8.5.1) and system time chapter 8.5.5) can be made in the related sub-menus. Details are provided in the subsequent chapters.
Information on hardware and memory is updated automatically by ComLynx Weblogger and cannot be edited.

If no system or component configuration is desired, skip the following items and continue directly from plant status Chapter 8.6.

8.5.1. Network

Under *'Network'*, settings such as host name, domain name, IP address, broadcast address, subnet mask, standard gateway and DNS server are predefined.

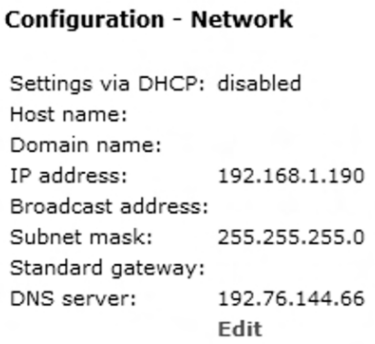


Illustration 8.5: Overview of Network Information

Options here include own settings (default) or DHCP settings (to be requested from the LAN administrator. DHCP settings employ different IP addresses.

DHCP: Dynamic Host Configuration Protocol - dynamic allocation of IP addresses. To avoid serious connectivity problems with ComLynx Weblogger, these parameters should **only be edited** in consultation **with your network administrator.**

Network configuration can be changed with *'edit'* (Admin. access necessary! see Chapter 8.3.1).

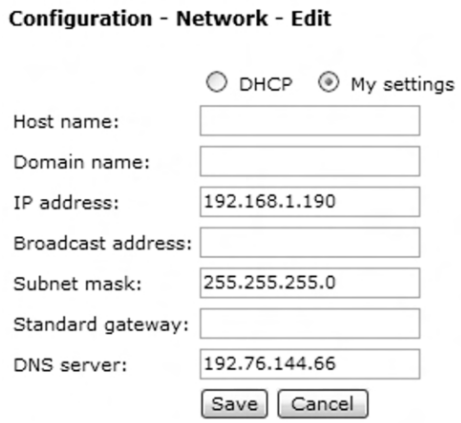


Illustration 8.6: Editing Network Settings

The following settings can be made here:

Parameter	Description
Host name	e.g. My Host.
Domain name	Name of domain. Ask your network administrator for the domain name.
Note! The following settings are obtained automatically with DHCP:	
IP address	Default entry: 192.168.1.190
Broadcast address	IP address for communicating with all computers in a network.
Subnet mask	Default entry: 255.255.255.0
Standard gateway	IP address of the Internet gateway. This address can be requested from your network administrator.
DNS server	This parameter can be requested from your network administrator.

Default network settings for Internet access via a modem:

- Standard Gateway: <empty>
- DNS server: 192.76.144.66

8.5.2. Modem

Under *'Modem'*, you enter modem and dialling parameters such as modem type, PIN, access number, login name and password etc. necessary for dialling into the Internet.

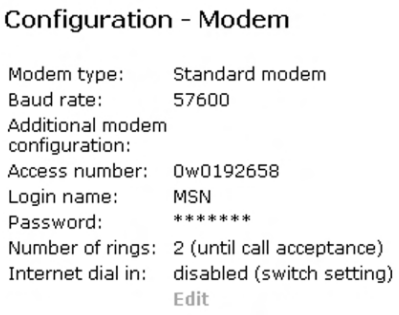


Illustration 8.7: Overview of Modem Information

Modem configuration can be changed with *'edit'* (Admin. access necessary! see Chapter 8.3.1).

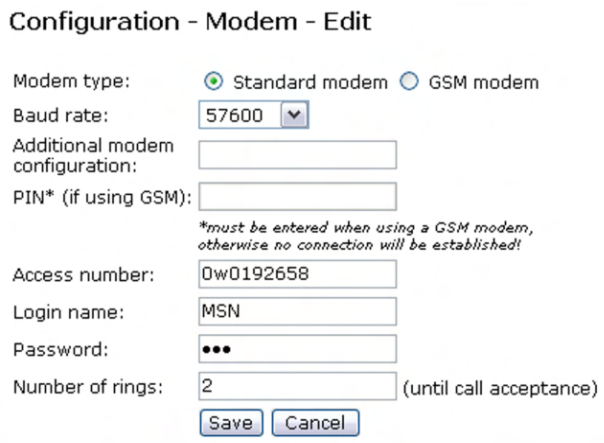

Configuration - Modem - Edit
Modem type: Standard modem GSM modem
Baud rate: 57600
Additional modem configuration:
PIN* (if using GSM):
*must be entered when using a GSM modem, otherwise no connection will be established!
Access number: 0w0192658
Login name: MSN
Password: •••
Number of rings: 2 (until call acceptance)
Save Cancel

Illustration 8.8: Editing Modem Parameters

The following settings can be made here:

Parameter	Description
Modem type	Type of the employed modem.
Baud rate	Maximum transmission rate of the connected modem.
Additional modem command	Configuration command for modem operation with software flow control.
PIN (for GSM)	GSM PIN code. This code can be requested from the provider. *If a GSM modem is being used, this code is a prerequisite for establishing connections.*
Access number	Number of the target computer / provider, e.g. 0w0192658. The "w" generates a pause during dialling. If extensions are in use, do not forget to specify an exchange number. This number is usually 0, as shown in the example above.
Login name	User name, e.g. MSN
Password	Password
Number of rings	Number of rings until the modem automatically takes the call.

A prerequisite for Internet access is that the Dial-Out Switch is in the "on" position. This switch can be found on the rear of ComLynx Weblogger unit (see Chapter 3.4). The current position of the switch can be seen on the overview of the modem configuration.

To avoid unforeseen costs it is advised to deactivate the internet access as soon as it is no longer required. If Internet connection is deactivated no messages can be sent.

Standard modem settings for Internet connection via MSN:

- Dial-in number: 0193670
- Login: msn@easysurfer-eco.de
- Password: msn

Dial-in number for extensions:

- Additional modem commands: ATX3
- Dial-in number: 00193670

8.5.3. E-mail Service

Under *'E-mail service'*, you specify mail-server settings for exchanging e-mails.
Parameters here include SMTP server, login, password, and sender address and authentication type.

Configuration - Email

SMTP server:	smtp.mail.com
Login:	max.mustermann@musteradresse.com
Password:	*******
Sender:	muster@musteradresse.com
SMTP authentication:	enabled
	Edit

Illustration 8.9: Overview of E-mail Service

E-mail service configuration can be changed with *'edit'* (Admin. access is necessary! See Chapter 8.3.1).

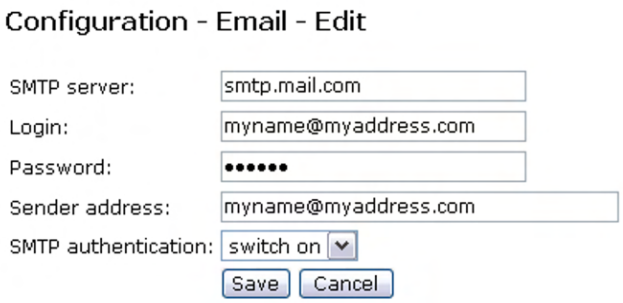


Illustration 8.10: Editing E-mail Parameters

The following settings can be made here:

Parameter	Description
SMTP server	(Simple Mail Transfer Protocol server) outbox server; this information can be requested from your Internet provider (see below) or LAN administrator.
Login	Internet provider's user name.
Password	Password assigned by the Internet service provider. *For security reasons, every password character is displayed as an asterisk (*)*
Sender address	Sender's e-mail address used for authenticating the SMTP server. An unknown sender address can cause e-mail delivery to fail.
Authentication type	Authentication – SMTP – on; the account information of the email will be given by the internet provider. **Note!** As authentication type exclusively SMTP Authentication is supported!

E-mails can also be exchanged via free-mail providers.
A prerequisite for e-mail exchange here is an SMTP server on the side of the email service provider.

Attention!
Not every provider offers this service free, check whether fees are charged for e-mail accounts such as Premium / Plus / Extra / Professional etc.

8.5.4. Well-known Free-mail and Online Services

The most well-known free-mail providers are listed below.

GMX*	
Incoming mail server:	POP3: pop.gmx.net, IMAP: imap.gmx.net
Outgoing mail server:	mail.gmx.net
User name:	GMX customer number or GMX e-mail address (use of the customer number is recommended)
Special features:	Uses SMTP authentication or POP3 before SMTP, depending on your account configuration. IMAP is only available at ProMail and TopMail rates.

Google mail*	
Incoming mail server:	pop.googlemail.com (SSL; port 995)
Outgoing mail server:	smtp.googlemail.com (SSL; port 465 or 587)
User name:	username@googlemail.com Uses SMTP authentication. POP3 and SMTP are SSL-encrypted.
Special features:	SMTP server runs on port 465 or 587; POP3 server runs on port 995 (standard port for POP3 via SSL).

Hotmail*
This e-mail provider does not offer any POP3 or SMTP services. An account requiring payment can be used to access mail via HTTP mail protocol in Outlook and/or Outlook Express. The HTTP mail address is: http://services.msn.com/svcs/hotmail/httpmail.asp

Lycos mail*	
Incoming mail server:	pop.premiummail.lycos.de
Outgoing mail server:	smtp.premiummail.lycos.de
User name:	Complete Lycos e-mail address
Special features:	Uses SMTP authentication. POP3 and SMTP are only available at extra charge. To avoid payment, you can access your Lycos account via HTTP mail. As a registered user of "The Bat!" e-mail program, however, you can use POP3 and SMTP freeof- charge. In this case, though, you will receive e-mail advertisements from Lycos partners. The HTTP mail address is: http://webdav.lycos.de/httpmail.asp

WEB.DE FreeMail*	
Incoming mail server:	POP3: pop3.web.de, IMAP: imap.web.de
Outgoing mail server:	smtp.web.de
User name:	User name
Special features:	Uses SMTP authentication or "POP3 before SMTP".

Yahoo! mail*	
Incoming mail server:	pop.mail.yahoo.de
Outgoing mail server:	smtp.mail.yahoo.de
User name	User name
Special features	Uses SMTP authentication. To make use of POP3 and SMTP, you first need to register with Yahoo! directly. Free access via POP3 and SMTP is only possible for mail accounts registered with Yahoo! Deutschland (i.e. the domain of your Yahoo! Address is yahoo.de). Addresses in the yahoo.com domain come at an extra charge.

*) Details not guaranteed. This information should be verified by the service providers.

Available online services (registration necessary) are listed below.

T-Online*	
Incoming mail server:	pop.t-online.de
Outgoing mail server:	mailto.t-online.de
User name	Any
Special features	Any user name and password are permissible; these parameters can even be left out completely, provided that you have logged in via T-Online.

Freenet*	
Incoming mail server:	mx.freenet.de (POP3 and IMAP)
Outgoing mail server:	mx.freenet.de
User name:	username@freenet.de
Special features:	Uses SMTP authentication.

*) Details not guaranteed. This information should be verified by the service providers.

8.5.5. System Time

The System time indicates the current time in ComLynx Weblogger. This value can be adjusted manually or synchronised via NTP time server.

NTP: "Network Time Protocol" standard for synchronising clocks in computerised systems.
Although an NTP time server is set as default, it can be modified individually. Addresses can be found on the Internet.

Illustration 8.11: System Time Information

System time configuration can be changed with *'edit'* (Admin. access is necessary! See Chapter 8.3.1).

Illustration 8.12: Editing System Time

Manual adjustment of the Date and Time is directly possible.

Attention!
Use caution when changing system time! A time difference of **more than 10 minutes** can lead to problems with the data which has already been recorded.

Additionally, you can set a *'Time zone'* although it **does not influence the system time**. Permitting a display of locations within the selected time zone, this option relies on the time value entered beforehand.

Defined time zones are listed below.

Time Zone	Cities (excerpt)
GMT: Greenwich Mean UT: Universal UTC: Universal Coordinated WET: Western European	(GMT*) Casablanca, Monrovia, Dublin, Edinburgh, Lisbon, London
CET: Central European	(GMT* +01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Paris
EET: Eastern European CAT: Central Africa Time SAST: South Africa Standard Time	(GMT* +02:00) Athens, Istanbul, Minsk, Cairo, Jerusalem
EAT: East African BT: Baghdad MSK: Moscow Time	(GMT*. +03:00) Baghdad, Moscow, Nairobi

* GMT= 12.00

To synchronise with the time server, check the server time replication option. Once a modem connection is active, the system time is compared with the time server's value.

Time server synchronisation depends on connection settings and the conditions listed below.

Time	Connection	Condition
5 am daily	Network connection	Correct DNS and gateway settings; see Chapter 8.4.1.
After successful connection set-up	Modem link	Connection needs to be established by ComLynx Weblogger.

Switchover to and from daylight savings takes place automatically.

8.5.6. Passwords

Under *Passwords* you manage passwords for system administration. The administrator's password can be changed here.

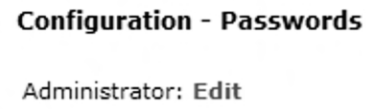


Illustration 8.13: Passwords Time Information

Password configuration can be changed with *'edit'* (Admin. access is necessary! See Chapter 8.3.1).

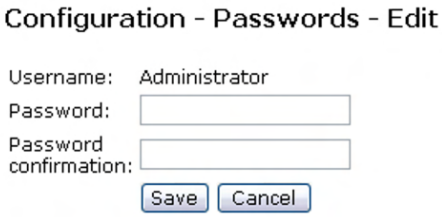


Illustration 8.14: Editing Password

The password must have between 6 and 16 characters.

8.5.7. Message Recipient

Under *'Message recipient'* you manage the recipients of reports and events (monitoring).

Illustration 8.15: Overview of Message Recipients

Click on *'New'* to create a new recipient; set the recipient status to *Active/Inactive* as required.

Individual dispatch options can be edited in the Monitoring (Chapter 8.6.1) and Reports (Chapter 8.7) sections.

There are various types of message recipients:

E-mail
Electronic sending/ receipt of messages

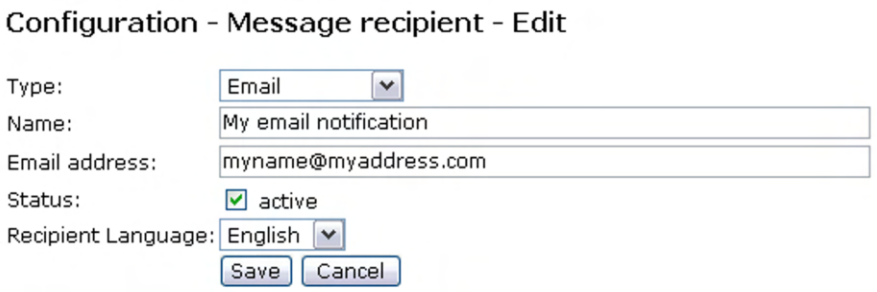


Illustration 8.16: New E-mail Recipient

The following settings can be made here:

Parameter	Description
Type	E-mail
Name*	Recipient's name, e.g. My name
E-mail address*	Recipient's e-mail address in the Internet, e.g. Max.Mustermann@musteradresse.com E-mail addresses are allocated by the provider or online services such as free-mail (see Chapter 8.5.4).
Status	Via activating / deactivating the checkbox the message recipient can be set to active/inactive. **Note!** Recipients already configured can be deactivated temporarily (e.g. for vacation periods).
Recipient's language	Language of the e-mails to be sent to the recipient.

* Mandatory field.

Short E-mail
Electronic sending/receiving of messages. Unlike in Emails important information is only submitted in the subject of the message. This allows the forwarding of the message as SMS (text message) to a mobile phone.

Example: Day yield - Plant name (2007-03-20) = 34.340 kWh

Settings for sending a short e-mail can be found in type E-mail.

Alarm Contact
To connect sirens and lamps. For this the alarm contact has to be connected to the relay output of the ComLynx Weblogger (see Chapter 3.4).

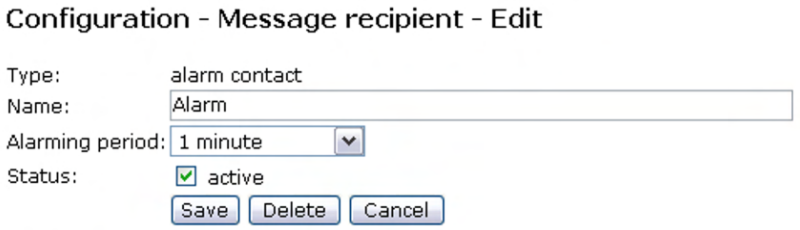


Illustration 8.17: New Alarm Contact

Parameter	Description
Type	Alarm contact
Name	Recipient's name, e.g. 10 minute alarm
Alarm Period	The duration of the connected sirens/lamps can be set here. The alarm contact will switch off automatically after the chosen duration or can be switched off manually with "Alarm Confirmation"(8.6.3)
Status	Setting or removing the check mark will activate/deactivate the alarm contact.

Click on *'Edit'* (Figure 8.5) to enter new settings and overwrite old ones (see Chapter 8.3.1); this does not apply to the message recipient type. After being saved once, the message recipient type can no longer be changed. For this purpose, you need to create a new message recipient.

8.5.8. Plant Details

Under *'Plant details'* you can define and modify settings for the main page. Apart from creating a plant picture, you can specify a name*, description, owner and other plant-related details.

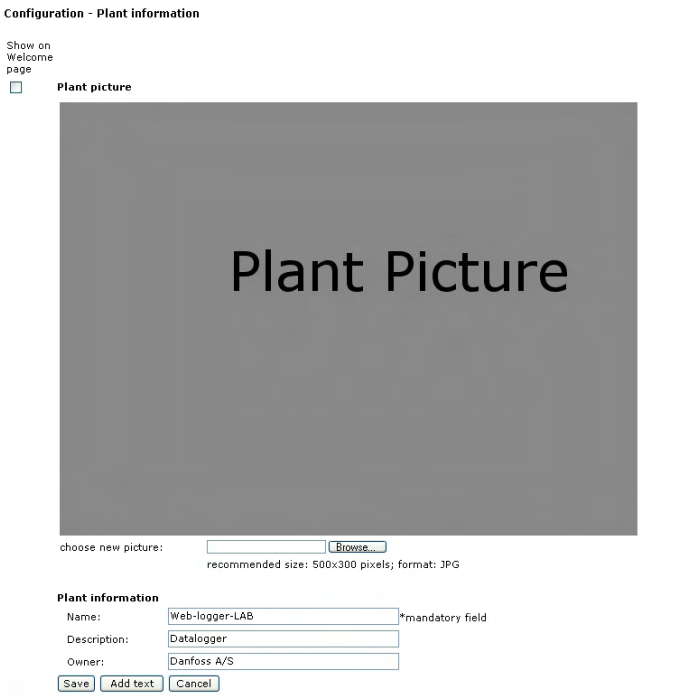


Illustration 8.18: Editing the Main Page

The plant picture can be activated / deactivated via a checkbox. To enable graphic display, the checkbox *'Show on welcome page'* needs to be marked and an image file needs to be uploaded.

Click on *'Browse'* and then on *'Open'* to upload a locally saved graphics file complying with the prerequisites mentioned here. Click on *'Save'* to display the image on the main page. If an image does not comply with the graphics prerequisites, the previous graphics setting is retained.

Graphics prerequisites:

- Less than 300 KB
- Format: .jpg

Recommended size: 500 x 300 pixel; format: .jpg

Click on *'Add text'* and then fill the *'Description'* (max.200 characters) and *'Text* '(max. 30 characters) fields to create a new row of details. You can click on *'Add text'* repeatedly to add any required number of new rows to the current one.
Clicking on *'Save'* displays the created rows of information on the main page.

Text can be formatted by means of HTML tags.

Deleting the contents of a row and clicking on *'Save'* deletes the row.

8

8.5.9. Webportal

Under '*Webportal'* the dial-up parameters for the data transfer from the ComLynx Weblogger to the Webportal can be configured.

Illustration 8.19: Overview Webportal

The Webportal settings can be changed with *'Edit'* (Admin access is necessary! See Chapter 8.2.1).

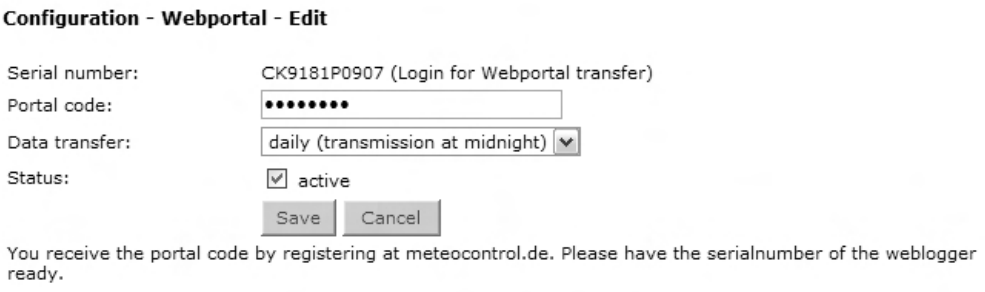

Configuration - Webportal - Edit
Serial number: CK9181P0907 (Login for Webportal transfer)
Portal code: ••••••••
Data transfer: daily (transmission at midnight)
Status: active
Save Cancel
You receive the portal code by registering at meteocontrol.de. Please have the serialnumber of the weblogger ready.

Illustration 8.20: Edit Webportal Settings

An unsuccessful data transfer will be logged as an event in ComLynx Weblogger Monitoring.

The following settings are possible:

Parameter	Description
Serial number	Serial number of the ComLynx Weblogger. The Serial number together with the portal code are needed for the data transfer.
Portal code	Password needed for the data upload to the Webportal. The portal code is received when registering at www.meteocontrol.de. The serial number of the ComLynx Weblogger is needed when creating the portal account.
Data transfer	A data transfer interval can be specified.
Status	By checking/unchecking the data transfer is activated/deactivated.

Permissible intervals for the data transfer are:

Hourly:	Every hour, a data transfer of the logged data is issued.
Daily:	Once a day at 00:00, a data transfer of the logged data is issued.

A prerequisite for the data transfer is a valid and active Webportal account at www.meteocontrol.de. Information and details can be requested from Danfoss.

8.5.10. PV Plant

Under *'PV plant'* you can individual edit and view details on the entire plant, including the monitoring options set for the alarm system.

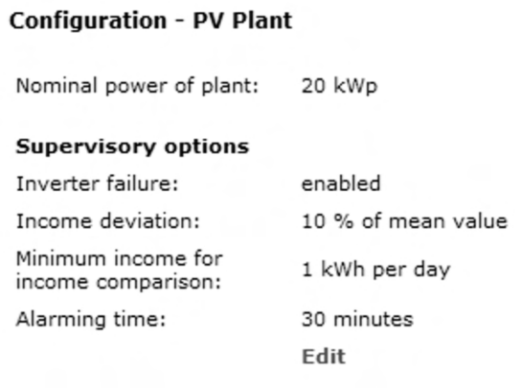


Illustration 8.21: Overview of PV Plants

Settings can be changed with *'Edit'* (Admin. access is necessary! See Chapter 8.3.1).

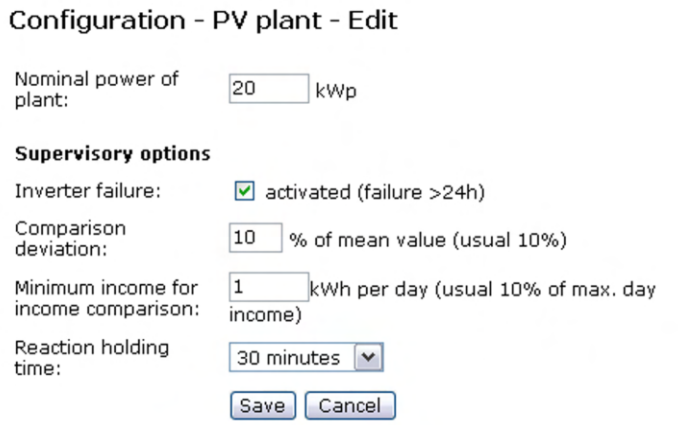


Illustration 8.22: Editing PV Plant Parameters

The *'Supervisory options'* options are used to configure the inverter alarm parameters.

Inverter failure
If *'Inverter failure'* is activated, an alarm is issued on a failure of any inverter. An inverter is assumed to have failed if it does not communicate with ComLynx Weblogger for an entire day.

Income deviation
An alarm is issued if an inverter supplied insufficient energy compared with the remaining inverters on the previous day. This is attributable to soiling, partial failure of solar cells, or a faulty inverter circuit.
The *'Income deviation'* field is used to specify a percentage of the mean value serving as a basis for evaluating yield. The settings below must be performed for yield deviation.

- **Income deviation:** Percentage deviation of an inverter's income from the expected share.
- **Minimum income for comparison:** A minimum income can be specified to avoid incorrect alarming on days with low levels of solar irradiation. If the plant's total income falls short of the minimum level, no energy comparison or alarming takes place.
- **Installed peak power:** The maximum power must be entered manually in the corresponding field [Wp]. A value of "0" deactivates monitoring of the inverter's income.
  The maximum power can be set individually for each inverter in 8.5.11 *Configuration/ Inverters.*

Evaluation is performed as described below:
Each inverter's daily income is divided by the maximum power of its installed solar modules.
An inverter's relative income is determined as follows:
Relative income = Energy per day [kWh] / installed power [kWp]
The relative income is compared with the remaining inverters' output. If the percentage deviation exceeds the set minimum value, an alarm is issued.
An income comparison is only performed if two or more inverters are active.

Reaction holding time
Additionally the time interval to alarm issue (*'reaction holding time'*) can be set for the inverters (immediately = alarm issued immediately after event).
It is possible to send alarms via e-mail. For that purpose a message recipient (8.5.7) needs to be created and activated. Settings for monitoring e-mails are described in 8.7.

False alarms due to seasonal and weather-related factors such as snowfall and twilight are not to be ruled out.

8.5.11. Inverter

Under 'Inverter', you can view and individually configure all inverters detected by the system. You can also search for new inverters here.

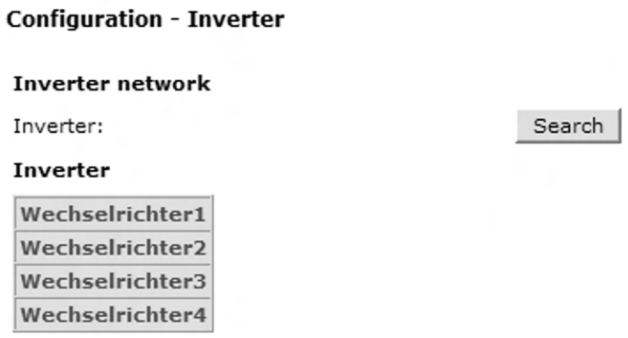


Illustration 8.23: Overview of Inverters

The inverter *'Search'* function permits easy scanning for all operational, enabled inverters (also known as *scanning*) and is necessary for working with the ComLynx Weblogger.

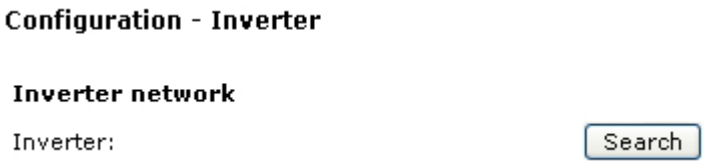


Illustration 8.24: Inverters Search

A search can be renewed at any time; all newly found inverters are included in the search log. Clicking on the serial number of an inverter opens the related settings window.

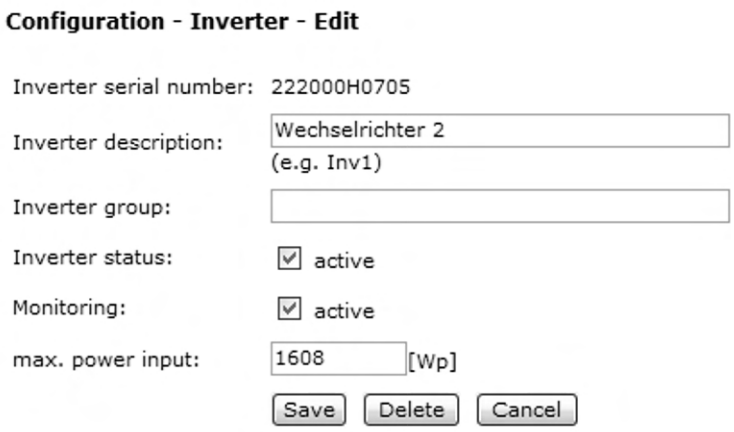


Illustration 8.25: Editing Inverter Settings

'Delete' removes the inverter from the system. Note the information provided under *'automatic network 'search'.*

The following settings can be made here:

Parameter	Description
Inverter serial number	Assigned by the manufacturer, this serial number cannot be changed.
Inverter description*	Unique description for the inverter (compulsory entry). Special characters or blank spaces are not permissible here. **Note!** The descriptions are used for the inverter reference in the reports.
Inverter group*	Here you can individually define an inverter group. One or more groups can be specified (e.g. group 1, group 2 etc.). Inverters are displayed in accordance with their group affiliation.
Inverter status	The inverter monitoring can be set to active/inactive via activating / deactivating the checkbox.
Monitoring	The alarm function for monitoring excessively low daily income can be activated / deactivated here; also refer to Chapter 8.5.10.
Max. input power	The maximum power calculated so far is indicated here which can be entered manually or overwritten automatically from the system if a higher value is registered.

* Mandatory field

Inverter settings must be performed individually for each connected inverter.

Automatic network scan
At 10.00 am and 2.00 pm every day, the system commences a network scan. This permits ComLynx Weblogger to search for connected inverters. Inverters not yet registered are added automatically to the configuration event log (see also Chapter 8.6).

Deleted inverters with an active status are added again automatically during the network search procedure. Deactivating the Inverter status check box can prevent this.

8.5.12. Sensors

Additional sensors can be connected and scanned via the ComLynx Sensor Interface. All sensors detected by the system can be viewed and individually configured in the Sensor menu.
The *'Search'* function permits an easy scanning for the sensor module.

Illustration 8.26: Search Sensor Modules

By default, theComLynx Sensor Interface sensor module with address 81 is found and calibrated. The calibration value of each individual sensor can be entered here (it is specified by the sensor manufacturer and can be found on the sensor).

Illustration 8.27: Overview Sensors

Clicking on the ComLynx Sensor Interface option opens the related settings window.

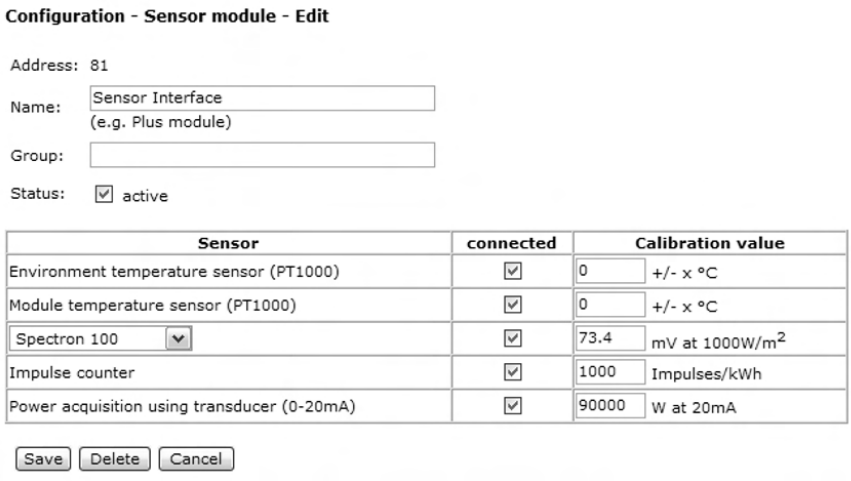


Illustration 8.28: Editing ComLynx Sensor Interface

'Delete' removes the ComLynx Sensor Interface from the system. Note the information provided under *automatic network scan*.

The following settings can be made here:

Parameter	Description
Address	81
Name	ComLynx Weblogger
Group	Here you can individually define groups. The sensor module is displayed in accordance with their group affiliation.
Status	By marking this check box, the sensor can be set to *Active* and scanned accordingly by the system status monitor. Inactive sensors are automatically hidden from view.
External temperature	Gives an Offset (delta value) for the correction of the external temperature.
Module temperature	Gives an Offset (delta value) for the correction of module temperature.
Irradiance sensor	Selection of sensor type. The calibration value indicates the voltage generated by the sensor when an irradiance of exactly 1000 W/m^2 is attained. This value is normally noted on the irradiance sensor. The default setting is 75 mV.
Pulse counter	Indicates the number of pulses generated by the yield counter per kWh. The default value here is 1000, i.e. the yield count increases by 1 kWh every 1000 pulses.
Power (transformer)	The calibration value indicates the maximum plant power to which 20mA corresponds on the output.

8.5.13. System Language

The Standard language of the ComLynx Weblogger is set to English on production, but can be individually set for each system.

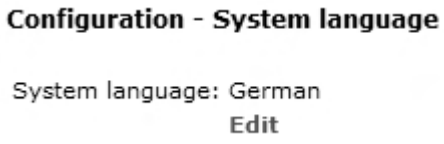


Illustration 8.29: System Language

The language option can be changed with *'Edit'*. (Admin access is necessary! See Chapter 8.2.1.

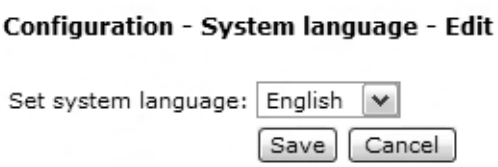
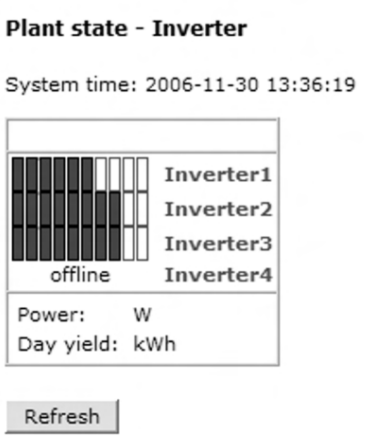


Illustration 8.30: Editing System language

A new language can be chosen via the drop-down menu, and saved. The new language will function after a time-out or new session (see Chapter 8.3).

8.6. Plant Status

The plant status is a dynamic dialog in which current inverter data are scanned and listed in a tabular overview. The plant's *current* status is indicated here, this includes current power and event of each individual inverter.



This table provides brief details on **active** inverters (settings) including serial number, day yield, output power and time of last data request.
Inactive inverters are not displayed in the plant status window. Related settings are described in 8.5.11.
The *'Refresh'* function can be used to re-scan inverter status and update system time.

Illustration 8.31: Plant Status

An inverter's status details can be viewed by clicking on the corresponding Inverter name. e.g. Inverter1.

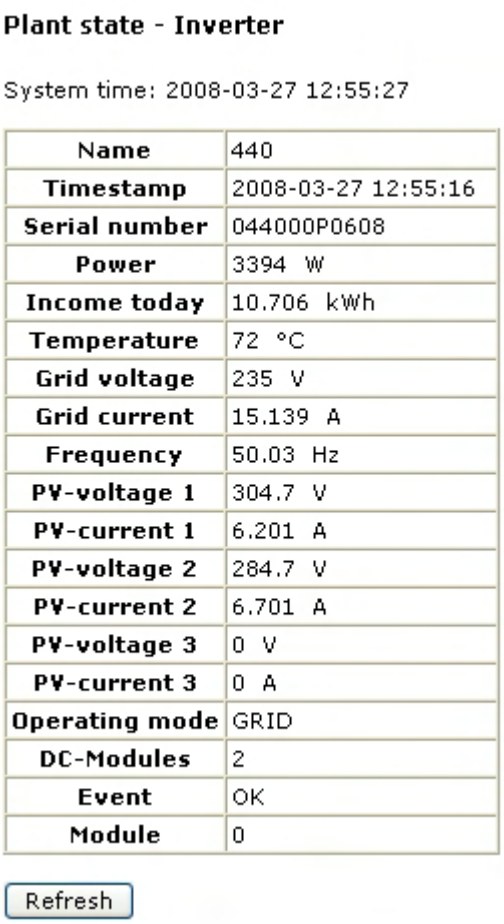


Illustration 8.32: Inverter Status

ComLynx Weblogger registers the inverter data described below.

Parameter	Unit	Description
Name	-	Inverter description
Time stamp	dd-mm-yyyy hh:mm:ss	Time stamp
Serial number	-	The serial number of the current inverter
Power	W	Current production, 0..65 kW
Income today	Wh	Daily yield, 0..4000 MWh
Temperature	°C	Internal inverter temperature, -120..120 °C
Grid voltage	V	Grid voltage, 0..250 V
Grid current	mA	Grid input current, 0..65 A
Frequency	Hz	Grid frequency, 0.. 100.00 Hz
PV voltage 1	V	DC module 1 input voltage, 0..6500,0 V
PV current 1	mA	DC module 1 input current, 0..65 A
PV voltage 2	V	DC module 2 input voltage, 0.0..65 A
PV current 2	mA	DC module 2 input current, 0..6500,0 V
PV voltage 3	V	DC module 3 input voltage, 0.0..6500,0 V
PV current 3	mA	DC module 3 input current, 0..65 A
Operation mode	-	Operating mode, GRID ...
DC module	-	Inverter type, 0..255
Event	-	Error code, 0..255
Module	-	Error code of delivering module, 0..255

Note:
Additional information on inverters is provided in the related manufacturer's manual.

Status details on sensors connected to the ComLynx Sensor Interface can be viewed by clicking on *Sensors* in the navigation menu:

Plant state - Sensors

System time: 2007-04-16 14:37:06

Name	Sensor Interface
Timestamp	2007-04-16 14:37:03
Serial number	81
Environment temperature	- °C
Module temperature	- °C
Irradiation	- W/m²
Income today	0.000 kWh
Power	- W

Illustration 8.33: Sensor Status

8.7. Monitoring

The monitoring menu provides an overview of all system events according to category. All events are listed in detail and can be configured individually for cyclical notification.

Monitoring

Configuration events (Configuration changes, new message recipient,...)

System event (General system events such as reboot,...)

System details (Advice, error messages, ...)

Inverter events (Events reported by inverter)

No daily yield (Inverter without daily yield)

Low daily yield (Yield deviation of the inverter from the averaged daily plant yield too high)

Inverter failure (Inverter wasn't reachable ALL DAY)

Illustration 8.34: Overview of Monitoring

Configuration Events
Provides information on modified configurations newly created and modified message recipients, deactivated alarms and re-starts.
Example: Message recipient my.recipient@myaddress.com was added.

System Events
Provides information such as system starts, Internet access events and system incidents.
Example: System was restarted on 2006-07-27 15:16:03.

System Details
Important or special events (e.g. problems with mail dispatch).
Example: A mail could not be sent: *Couldn't connect to mail.gmx.net*

Inverter Events
Events reported from the inverters such as monitoring status, overvoltage, overtemperature and grid failure.
Example: Inverter1111111, DC module 1 reports error U-PV

No Daily Yield
No daily yield check takes place daily at 6 pm. Settings and descriptions are provided in 8.4.9 (PV plant).
Example: No daily yield from inverter1111111.

Low Daily Yield
Low daily yield comparison takes place **daily** at **6 pm**. *Settings and descriptions are provided in 8.4.9 (PV plant).*
Example: Yield deviation for inverter1111111: -100 %

Inverter Failure
If an inverter wasn't reachable for a whole day, the check is made **daily** at **6 pm**. *Settings and descriptions are provided in 8.4.9 (PV plant).*
Example: Failure of inverter1111111 for the whole day.

To open the event group click on the header row of the group. All events recorded up to this point will automatically be displayed by the system.
All occurred events are indicated here in chronological order. The most recent events are shown first.
Events are recorded as follows:

- **Time:** Date and time of the event
- **Event:** Event report

Timestamp	Event
2006-07-28 15:12:55	Network configuration modified
2006-07-28 14:00:02	Automatic network scan was performed
2006-07-28 09:41:35	Plant details configuration modified
2006-07-28 14:00:05	Automatic network scan was performed
2006-07-28 10:00:06	Automatic network scan was performed
2006-07-28 14:00:02	Automatic network scan was performed

Illustration 8.35: Overview of Monitoring Log

Clicking on *Back* invokes the monitoring overview again.

8.7.1. Event Notification (Monitoring) Editing Functions

Several icons are available for editing the event notification. Notifications can either be activated/ deactivated directly in the overview using the symbols, or in the settings.
When you move the mouse over any one of the icons, a tool tip describing the related function appears.

	Change settings (message activation, intervals, e-mail transmission)
	Activate alarm (only visible with a deactivated alarm)
	Deactivate alarm (only visible with an activated alarm)

Edit Settings
Notification settings (e-mail dispatch) can be configured here.

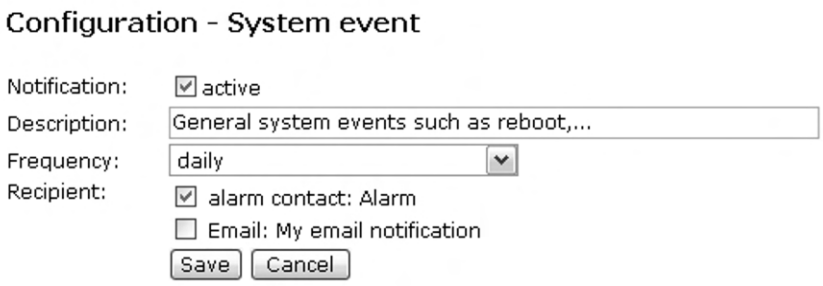


Illustration 8.36: Reporting of Events and Event Groups via E-mail

Under *'Description'*, you can edit the event group's short description; clicking on 'Save' applies the changes immediately to the overview. The event group's name cannot be changed.
'Notification' can be activated by marking the corresponding check box; the notification interval can be specified in the *'Frequency'* field. These values depend on the event group and the reaction holding time configured in 8.5.10.

The reaction period refers to ComLynx Weblogger's alarm time; the set interval applies exclusively to the event report.

A *'Recipient'* can be configured as in 8.5.7 (message recipients).
Permissible intervals for event groups are listed below.

Event Group		Immediately without reminder	Immediately and hourly reminder	Hourly	Daily	Weekly
Configuration events				X	X	X
System events		X		X	X	
Inverter events*1		X	X			
No daily yield					X*2	X
Low daily yield					X*2	X
Inverter failure					X*2	X
Communication error*1			X	X		
System message					X	X

*1 Reaction holding time.
*2 Daily check at 6 pm; reports are issued later

Immediately without reminder:	*Immediately* (following a reaction period if necessary); no reminder of a currently registered event is issued after that.
Immediately and hourly reminder:	*Immediately*, followed by hourly reminders as long as the event is still registered.
Hourly:	*On every hour*, a check is made as to whether events in the event group occurred in the *previous hour*. New events are compiled and reported together with the remaining registered events.
Daily:	*Once daily at 00:00 hours*, a check is made as to whether events in the event group occurred the *previous day*. New events are compiled and reported together with the remaining registered events.
Weekly:	*At 00:00 hours on every Monday*, a check is made as to whether events in the event group occurred in the *last seven days*. New events are compiled and reported together with the remaining registered events.

Activate/Deactivate Alarm

	Activate
	De-activate

Clicking on the relevant icon will activate or de-activate the alarm. Checking or un-checking the check box in the settings will be automatically undertaken by the system.

Current status is shown by the following colours:

Black:	Active alarm
Grey:	Inactive alarm

All functions for editing event groups remain enabled even after alarm deactivation.

8.7.2. E-mail Messages

Events are reported via e-mail in accordance with the message and recipient settings.
E-mail language is the same as that set for the message recipient.

The structure is equal for all sent messages, only the content is individually arranged:
From: Sender address (e-mail service)
To: Message recipient
Subject: Event group – system name – time stamp (start / end of last events)

Event group – system name – time stamp (start / end of last events)

- List of event messages

```
Subject: Configuration events - system name - 2006-10-18 14:00:11-2006-10-19 16:55:25

Configuration events - System name - 2006-10-18 14:00:11-2006-10-19 16:55:25

2006-10-18 14:00:11: Automatic network scan was performed.
2006-10-18 15:15:55: PV-plant configuration modified..
2006-10-18 17:29:52: System time configuration modified.
2006-10-18 11:58:21: Manual network search was performed.
2006-10-18 16:55:10: Message recipient Alarm added.
2006-10-18 18:05:25: Message recipient My email notification added.
```

Illustration 8.37: Example of Configuration Notification

E-mails that cannot be delivered as a result of incorrect addressing, for instance, are logged in the system messages. Incorrect addresses should be rectified as soon as possible.

> Should several people require simultaneous information, it is recommended to use a distribution list (e.g. support@address.com).

8.7.3. Notification of Alarm

If a device has been connected to the alarm contact of the ComLynx Weblogger, the message recipient (8.5.7) 'alarm contact' needs to be set up, activated and selected as message receiver. If an alarm is triggered, an alarm confirmation appears on the main page of the ComLynx Weblogger, which can either be acknowledged by pressing the 'alarm-off'-button or will automatically be deactivated by the system after the alarm duration (8.5.7) has passed.

> If the alarm is not acknowledged before the next recording interval, the status signal light turns red (Figure 8.38).

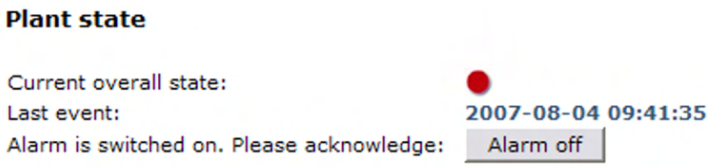


Illustration 8.38: Activated Alarm

> The reaction time of the relay can be up to 5 minutes. This can lead to a slight delay in notification of the alarm contact.

If the alarm is not cancelled within allowed time interval the status display will turn to red.
The acknowledgement of an alarm is tracked in 'configuration events'.
Example of an event notification if a relay is connected: *Alarm relay has been deactivated.*

8.8. Reports

Reports provide a variety of graphic data evaluations, representing power and yield in relation to occurred inverter events. It is possible to switch between days and months.

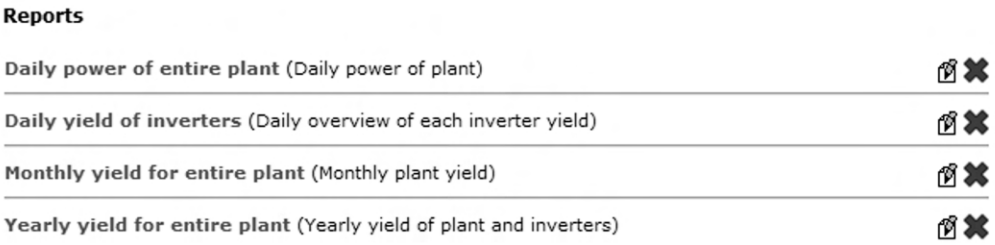

Reports
Daily power of entire plant (Daily power of plant)
Daily yield of inverters (Daily overview of each inverter yield)
Monthly yield for entire plant (Monthly plant yield)
Yearly yield for entire plant (Yearly yield of plant and inverters)

Illustration 8.39: Overview of Evaluations

A variety of representations are possible in accordance with the desired evaluation period.

- **Daily power of entire plant:** The total power of all inverters is represented here in a line diagram.
- **Daily yield of inverters:** The individual yields of all inverters are represented here in a bar chart.
- **Monthly yield of entire plant:** The total yield (per month) of all inverters is represented here in a bar chart.
- **Yearly yield of entire plant:** The total yield (per year) of all inverters is represented here in a bar chart.

Depending on the report group it is possible to choose between days and months. The various evaluations can be viewed and configured individually for cyclical messaging.
To open the event group click on the header row of the group. All data recorded up to this point will automatically be displayed in the diagrams by the system.
Depending on the individual report type the report generation can be influenced by different selection possibilities, which will be shown on the time- axis as either a line graph or bar-chart.
Additionally all events are indicated in chronological order below the diagram. As in the monitoring log, the most recent events are indicated here first.

Events are recorded as follows:

- **Timestamp:** Date and time of the event
- **Event:** Event report

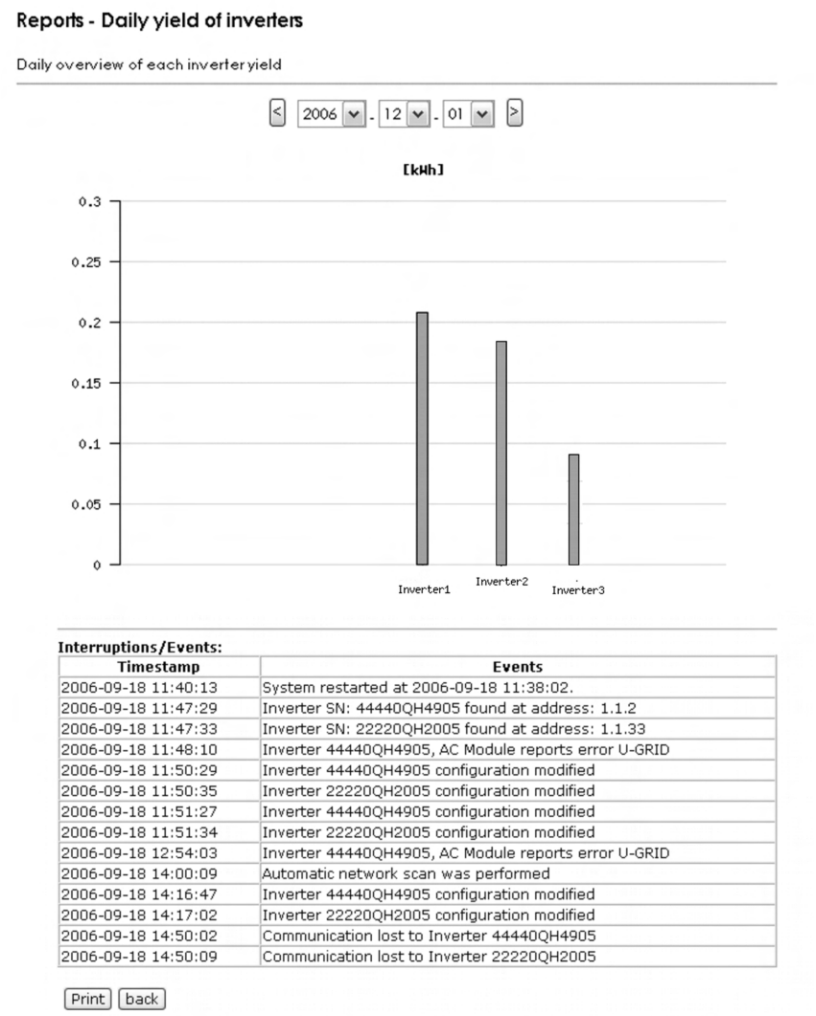


Illustration 8.40: Report

8.8.1. Reports Editing Functions

As in the monitoring section, several icons are available for editing the report groups here. Notifications can either be activated/deactivated directly in the overview using the symbols, or in the settings.
When you move the mouse over any one of the icons, a tool tip describing the related function appears.

	Change settings (message activation, intervals, e-mail transmission)
	Activate evaluation (only visible with a deactivated evaluation)
	Deactivate evaluation (only visible with an activated evaluation)

Edit Settings
Notification options (e-mail dispatch) can be configured here.

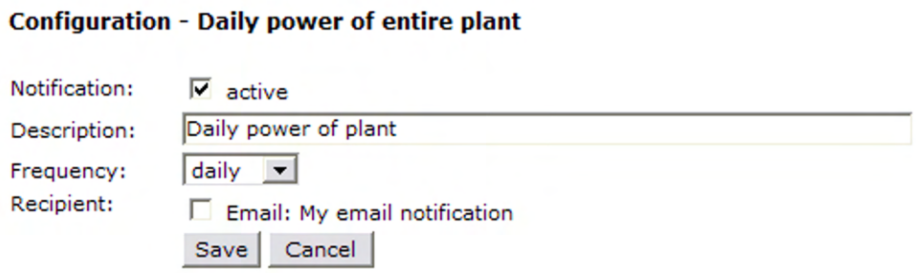


Illustration 8.41: Reporting of Evaluations via E-mail

Under *'Description'*, you can edit the event group's short description; clicking on *'Save'* applies the changes immediately to the overview. The name of the event group cannot be changed.
'Notification' can be activated by marking the corresponding check box; the notification interval can be specified in the *'Frequency'* field.
'Recipients' can be configured as in 8.5.7 (message recipients).

Permissible intervals for report groups are listed below.

Evaluation Group		Hourly	Daily	Weekly
Daily power		X	X	
Daily yield		X	X	
Monthly yield			X	X
Yearly yield				X

Hourly:	*On every hour*, an updated report together with occurred events is issued.
Daily:	*Every day at 00:00 hours*, an updated report together with occurred events is issued.
Weekly:	*Every Monday at 00:00 hours*, an updated report together with occurred events is issued.

Activate/Deactivate Notification

	Activate
	De-activate

Clicking on the relevant icon will activate or de-activate the alarm. Checking or unchecking the check box in the settings will be automatically undertaken by the system.

Current status is shown by the following colours:

Black:	Active alarm
Grey:	Inactive alarm

All functions for editing event groups remain enabled even after alarm deactivation.

8.8.2. E-mail Messages

E-mail is sent to the user as part of every evaluation. E-mail language is the same as that set for the message recipient.
The structure is equal for all sent messages, only the content is individually arranged:
From: Sender address (e-mail service)
To: Message recipient
Reference: Evaluation – system name – time stamp (day/month/ year)

Report – system name – time stamp (day/month/ year)

- Diagram: Line diagram or bar chart (depending on the evaluation type)
- Timestamp – logged event (if available)

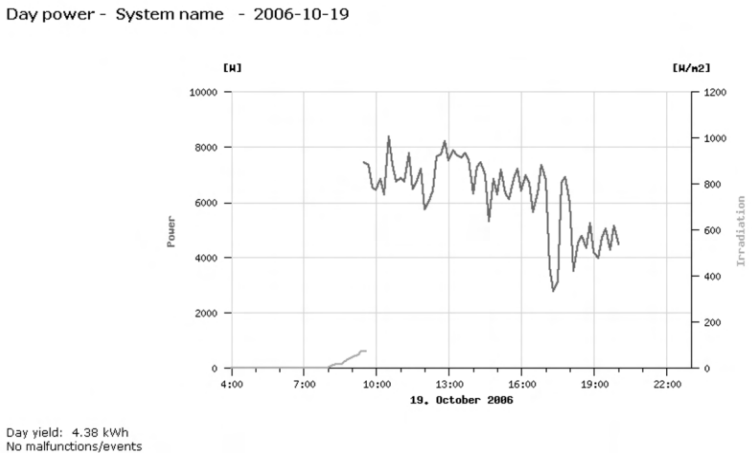


Illustration 8.42: Example of Report Notification

E-mails whose delivery failed as a result of incorrect addressing, for instance, are logged in the system messages. Incorrect addresses should be rectified as soon as possible.

Should several people require simultaneous information, it is recommended to use a distribution list (e.g. support@ testaddress.com).

8.9. Download

The download function makes it possible to view and save data locally.

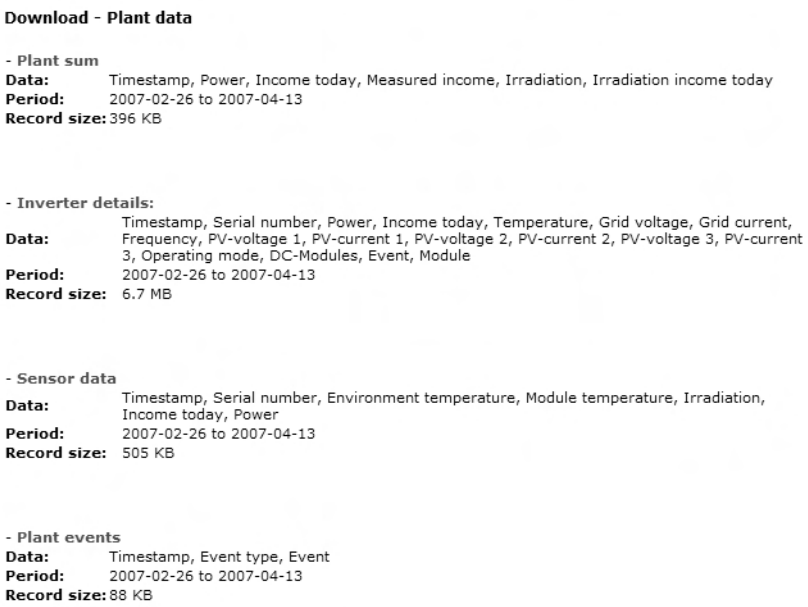

Download - Plant data
- Plant sum
Data: Timestamp, Power, Income today, Measured income, Irradiation, Irradiation income today
Period: 2007-02-26 to 2007-04-13
Record size: 396 KB
- Inverter details:
Data: Timestamp, Serial number, Power, Income today, Temperature, Grid voltage, Grid current, Frequency, PV-voltage 1, PV-current 1, PV-voltage 2, PV-current 2, PV-voltage 3, PV-current 3, Operating mode, DC-Modules, Event, Module
Period: 2007-02-26 to 2007-04-13
Record size: 6.7 MB
- Sensor data
Data: Timestamp, Serial number, Environment temperature, Module temperature, Irradiation, Income today, Power
Period: 2007-02-26 to 2007-04-13
Record size: 505 KB
- Plant events
Data: Timestamp, Event type, Event
Period: 2007-02-26 to 2007-04-13
Record size: 88 KB

Illustration 8.43: Overview of Available Download Records

8

- **Plant sum:** Contains values for the total income today, power, recording time stamp, as well as irradiation and irradiation income today.
- **Inverter Details:** Provides detailed information on each selected inverter.
- **Sensor Data:** Contains detailed information and recording time stamp of the sensors on each selected value.
- **Plant events:** Lists events, details, warnings and errors.

The download page displays all the information available in ComLynx Weblogger in the following order:

- Logged data (fixed entries in the case of events)
- Period (the time period in which data has been logged)
- Record size (KB or MB, the size of the file containing the logged data) (KB or MB)

Clicking on the header of a log invokes the corresponding download form.
This page again displays additional details on the log type. Depending on the selected type, the download form displays a list comprising data columns.

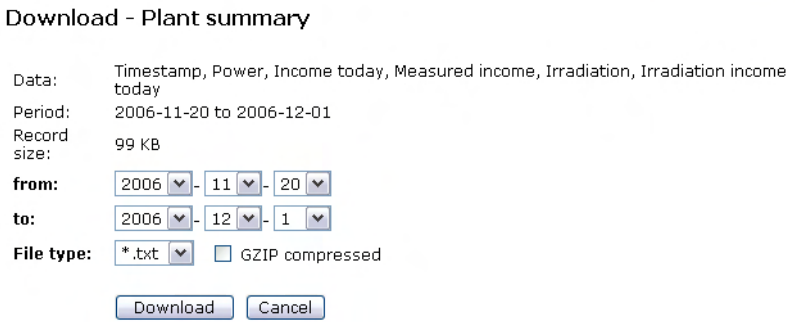

Download - Plant summary
Data: Timestamp, Power, Income today, Measured income, Irradiation, Irradiation income today
Period: 2006-11-20 to 2006-12-01
Record size: 99 KB
from: 2006 - 11 - 20
to: 2006 - 12 - 1
File type: *.txt
GZIP compressed
Download
Cancel

Illustration 8.44: Download Form (Example Plant Summary)

The following download criteria can be defined:

- Desired period in days. All data records logged within this period are downloaded.
- Desired data columns. This does not apply to the plant summary which is downloaded in a fixed data format.
- Desired file format. A choice of .txt (text), .csv (comma separated values) and .xml (XML file) is available here.
- Additional choice of GZIP compression which allows a quicker data download e.g. when dealing with large data volumes or a slow modem connection.

Note:
Modern browsers (e.g. Internet Explorer® from Version 5.0) decompress GZIP files automatically.

The time stamp cannot be deactivated.
Click on *'Download'* to start the download process. Download can take a few seconds. As soon as it is complete, a separate window appears for opening or saving the file. This window can be used to save the data file to your local hard disk or view (*'Open'*) it directly with the associated program.

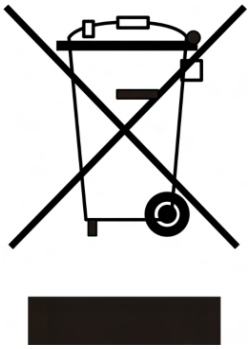
Note:
File download might be prevented by pop-up blockers in Internet Explorer®, Firefox® and/or firewall software.
Note the respective program supplier's usage instructions and options.

9. Technical Data

ComLynx Weblogger	
Processor	Industrial PC, CPU AMD SC520, 133 MHz, Flash BIOS, 64 MB RAM, RTC
Main Memory	64 MB RAM
Operating System	Linux
COM Ports	1x RS485 on terminal strip 1x RS485 RJ45 double socket
Interfaces	LAN (Ethernet 10/100 full-duplex) Modem or GSM connection SUB-D9 EasyLan
Signals	Internal loudspeaker LEDs for indicating events (7 green, 1 red), 3 LEDs on the multipoint connector
Data Storage	Compact Flash® type I adapter inside the housing for operating system and data storage
Housing	2-part, non-ventilated metal housing for carrierrail mounting (IP20)
Weight	800g net (without accessories and cable)
Environment humidity	Indoors/Switch cabinet
Operating Tempera-ture	Minimum 0 … +50°C
Dimensions	175 mm x 155 mm x 45 mm (W x H x D) including rear carrier rail adapter and multipoint connector
Alarm Contact	Potential-free Output max. 48VDC
Electricity Supply	12-24 VDC power supply: typically 5-7 W via an external plug-in power supply unit

10. Disposal

Disposal of Waste Equipment by Users in Private Households in the European Union:



This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.
For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

11. Declaration of Conformity

Danfoss Solar Inverters A/S

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DK-6400 Sønderborg
Denmark
CVR no.: 26 84 36 26

Tel: +45 7488 1300
Fax: +45 7488 1301

E-mail: solar-inverters@danfoss.com
Homepage: www.solar-inverters.danfoss.com

EU-DECLARATION OF CONFORMITY

Danfoss Solar Inverters A/S
Jyllandsgade 28
DK-6400 Sønderborg
Denmark

declare under our sole responsibility that the product

ComLynx

to which this declaration relates is in conformity with the following directive(s), standard(s) or other normative document(s), provided that it is used according to our instructions:

89/336/EEC EMC Directive.
73/23/EEC Low voltage Directive.

Conformance is tested according to the following standards :

- EN 55011 and EN 55022/9.98 Class B
- EN 50082 part 1

Date: 19-11-2007 Issued by: Arthur Philiposian	Date: 19-11-2007 Approved by: Uffe Borup, Senior manager Technology M.SC.E.E., Ph.D.

1 /1

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C0041033401

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